03 May 2000

VIIRS Unique SRD List of Changes since Version Two, Revision b/c, 07 March 2000 through Version Two, Revision d, 03 May 2000

CCBD 00030

Add the following subsection immediately following Sec. 3.2.1.1.1.16 of the VIIRS SRD:

"3.2.1.1.1.16.1 Active Fires (Application of Surface Type EDR)

Active surface fires are natural or anthropogenic fires. This application of the Surface Type EDR provides (a) geolocation of the pixels in which active fires are detected, (b) the sub-pixel average temperature of each active fire, and (c) the sub-pixel area of each active fire. The number of bands for which these products are provided is algorithm dependent and therefore TBD. A global, binary "fire/no fire" map is neither required nor desired. The products for this application are desired during both day and night time for clear-sky conditions and within clear areas under conditions of broken clouds.

Units: Degrees latitude and longitude for geolocation, K for sub-pixel average temperature, m^2 for active fire area.

Para. No.		Thresholds	Objectives
	a. Horizontal Cell Size		
V40.6.4.1-1	1. At nadir	1 km (TBR)	0.5 km (TBR)
V40.6.4.1-2	2. Worst case	2 km (TBR)	0.5 km (TBR)
V40.6.4.1-3	b. Horizontal Reporting Interval	(TBD) (gapless or near gapless coverage of land areas required)	(TBD) (gapless or near gapless coverage of land areas required)
V40.6.4.1-4	c. Horizontal Coverage	Land	Land
	d. Measurement Range:		
V40.6.4.1-5	1. Sub-pixel average temperature of active fire	800 K – 1200 K	800 K – 1200 K
V40.6.4.1-6	2. Sub-pixel area of active fire	from 100 m^2 to 50 m by greater of pixel in-scan and in-track dimensions (TBR).	from 50 m^2 to 100 m by greater of pixel in-scan and in-track dimensions (TBR).
	e. Measurement Uncertainty		
V40.6.4.1-7	1. Sub-pixel average temperature of active fire	50 K (TBR)	25 K (TBR)
V40.6.4.1-8	2. Sub-pixel area of active fire	30% (TBR)	15% (TBR)
V40.6.4.1-9	f. Mapping Uncertainty	0.2 km (TBR)	0.1 km
	g. Maximum Local Average Revisit Time	6 hrs	1 hour
	h. Maximum Local Refresh	(TBD)	(TBD)
V40.6.4.1-	i. Minimum Swath Width (All other	3000 km (TBR)	(TBR)

10	EDR thresholds met)		

Delete subsection 3.2.1.1.1.25, which reads:

3.2.1.1.1.25 Active Fires (Objective EDR)
Active surface fires are natural or anthropogenic fires of vegetated land surfaces. This EDR provides (a) geolocation of the pixels in which active fires are detected, (b) the sub-pixel average temperature of each active fire, and (c) the sub-pixel area of each active fire. The number of bands for which these products are provided is algorithm dependent and therefore TBD. A global, binary "fire/no fire" map is neither required nor desired. This EDR is required during both day and night time for clear-sky conditions and within clear areas under conditions of broken clouds.

Units: Degrees latitude and longitude for geolocation, K for sub-pixel average temperature, m^2 for active fire area.

Para. No.		Thresholds*	Objectives*
	a. Horizontal Cell Size		
	1. At nadir	1 km (TBR)	0.5 km (TBR)
	2. Worst case	2 km (TBR)	0.5 km (TBR)
	b. Horizontal Reporting Interval	(TBD) (gapless or near gapless coverage of land areas required)	(TBD) (gapless or near gapless coverage of land areas required)
	c. Horizontal Coverage	Land	Land
	d. Measurement Range:		
	1. Sub-pixel average temperature of active fire	800 K – 1200 K	800 K – 1200 K
	2. Sub-pixel area of active fire	from 100 m^2 to 50 m by greater of pixel in-scan and in-track dimensions (TBR).	from 50 m^2 to 100 m by greater of pixel in-scan and in-track dimensions (TBR).
	e. Measurement Uncertainty		
	1. Sub-pixel average temperature of active fire	50 K (TBR)	25 K (TBR)
	2. Sub-pixel area of active fire	30% (TBR)	15% (TBR)
	f. Mapping Uncertainty	0.2 km (TBR)	0.1 km
	g. Maximum Local Average Revisit Time	6 hrs	1 hour
	h. Maximum Local Refresh	(TBD)	(TBD)
	i. Minimum Swath Width (All other EDR thresholds met)	3000 km (TBR)	(TBR)

*Since Active Fires is an objective EDR, the attributes are not numbered as requirements, and the thresholds are not binding on the contractor. The thresholds and objectives for this EDR define the performance trade space of interest."

CCBD 00031

Insert the following subsections immediately following Sec. 3.2.1.1.2.2 in the VIIRS SRD:

"3.2.1.1.2.3 Requirements Prioritization

Guidance on the relative prioritization of EDRs with respect to one another and with respect to accommodation requirements addressed elsewhere in this SRD are provided in the following two sections.

3.2.1.1.2.3.1 EDR Prioritization

EDRs are partitioned into two sets of categories. Categories I, II, and III address the ranking of threshold requirements. Categories A and B address the ranking of objectives.

The EDR threshold prioritization categories are defined as follows:

- Category I - Trades addressing performance below threshold generally are not of interest.
- Category II - Trades addressing performance below threshold are of interest only for thresholds that are significant design drivers or when significant benefit (i.e., reduced cost, improved performance in other EDRs, improved spacecraft accommodation, etc.) is provided to the Government.
- Category III - Trades addressing performance below threshold are generally of interest especially when the thresholds are significant design drivers or significant benefit (i.e., reduced cost, improved performance in other EDRs, improved spacecraft accommodation, etc.) is provided to the Government. In general, thresholds should not be allowed to drive sensor design.

The EDR objective prioritization categories are defined as follows:

- Category A - Value to Government if thresholds are exceeded and/or objectives are approached.
- Category B - Value to Government if thresholds are exceeded and/or objectives are approached; however, in general, approaching objectives should not be allowed to significantly drive design.

The VIIRS EDRs are prioritized as follows:

	Threshold	Objective
• Imagery	I	A
• Sea Surface Temperature	I	A
• Aerosols	II	A
• Albedo	II	A
• Cloud Cover/Layers	II	A
• Cloud Effective Particle Size	II	A
• Cloud Optical Thickness	II	A
• Cloud Top Height	II	A
• Cloud Top Pressure	II	A
• Cloud Top Temperature	II	A

•	Fresh Water Ice	II	A
•	Ice Surface Temperature	II	A
•	Land Surface Temperature	II	A
•	Ocean Color/Chlorophyll	II	A
•	Sea Ice Age & Sea Ice Edge Motion	II	A
•	Snow Cover/Depth	II	A
•	Surface Type	II	A
•	Vegetation Index	II	A
•	Active Fires (Surface Type application)	II	B
•	Precipitable Water	II	B
•	Cloud Base Height	III	B
•	Currents	III	B
•	Littoral Sediment Transport	III	B
•	Mass Loading	III	B
•	Net Heat Flux	III	B
•	Soil Moisture	III	B

The above EDRs are listed alphabetically within each threshold category, and no prioritization is implied by the ordering within these categories.

3.2.1.1.2.3.2 Integrated Requirements Prioritization
VIIRS EDR and accommodation requirements are prioritized as follows, in descending order of priority:

- Category I EDRs
- Category II EDRs/Cost
- Volume
- Category A EDRs
- Mass
- Power
- Category III EDRs
- Category B EDRs
- Data Rate”

CCBD 00037
2.2 NONGOVERNMENT DOCUMENTS
STANDARDS:

Change FROM:

SAE AS1773 1995	Fiber Optics Mechanization of an Aircraft Internal Time Division Command/Response Multiplex Data Bus

Change TO:

CCBD 00038

Change V 40.6.4.1-6 **from**: …100 m^2 to 50 m by greater of pixel in-scan and in-track dimensions (TBR).
And…50 m^2 to 100 m by greater of pixel in-scan and in-track dimensions (TBR).
To: (100 $m)^2$ to 50 m by greater of pixel in-scan and in-track dimensions (TBR).
And…"(50 $m)^2$ to 100 m by greater of pixel in-scan and in-track dimensions (TBR)."

CCBD 00039

Change From: V40.7.6-9, 1. Global
V40.7.6-10, 2. Regional
Change To: V40.7.6-9, 1. Moderate
V40.7.6-10, 2. Fine

CCBD 00040

Change V40.2.3.2.1.2-8 threshold **from:** 85% at (TBS)% confidence level **to:** 85% at 95% (TBR) confidence level.
Change V40.2.3.2.1.2-8 objective **from:** 90% at (TBS)% confidence level **to:** 90% at 95% (TBR) confidence level.
Change V40.4.2-13 threshold and objective **from**: > (TBD) at (TBS)% confidence level **to**: >(TBD) at 95% (TBR) confidence level.
Change V40.6.3-7 threshold **from**: 90% (TBR) at (TBS)% confidence level **to**: 90% (TBR) at 95% (TBR) confidence level.
Change V40.6.4.-14 threshold **from**: 70% at (TBS)% confidence level **to**: 70% at 95% (TBR) confidence level.
Change V40.6.4.-14 objective **from**: (TBD) at (TBS)% confidence level **to**: (TBD) at 95% (TBR) confidence level.
Change V40.7.8-6 threshold **from**: 70% at (TBS) % confidence level **to**: 70% at 95% (TBR) confidence level.
Change V40.7.8-6 objective **from**: 90% at (TBS) % confidence level **to**: 90% at 95% (TBR) confidence level.

CCBD 00033

In VIIRS SRD Sec. 3.2.1.4 Earth Location Requirements, change the following text **FROM**:
"SRDV3.2.1.4-3
The centroid of a horizontal cell for any EDR shall be known to within 200 m (TBR) (3-sigma, equivalent circular error at nadir).
This upper bound constrains all geolocation errors, including those associated with the instrument, spacecraft, and geolocation algorithms. Post-processing, eg., to remove systematic errors, may be relied upon to meet this requirement.

Both SRDV3.2.1.4-1 and SRDV3.2.1.4-3 must be met, regardless of which requirement is more stressing. However, if SRDV3.2.1.4-3 is a design or cost driver or entails significant risk, then the requirement will be reviewed for appropriateness by the government."

TO:

"SRDV3.2.1.4-3

The LOS pointing knowledge shall be less than 90 arcseconds, 3 sigma. This will apply to the knowledge between the sensor LOS axes and the sensor alignment reference and will be composed of the static and dynamic components of the pointing knowledge. The LOS pointing knowledge is assumed to be the root sum square of the static and dynamic pointing knowledge components. The dynamic component of the pointing knowledge will be less than or equal to (TBD) arcseconds, three sigma. This pointing knowledge requirement only applies to sensor(s) required to produce the following EDRs:

Cloud Cover/Layers
Albedo
Land Surface Temperature
Vegetation Index
Snow Cover/Depth
Surface Type
Sea Ice Age and Sea Ice Edge Motion
Active Fires

CCBD		Page
00030	Active Fires	44, 50
00031	Inclusion of VIIRS Requirements Prioritization in VIIRS SRD	53
00037	Replacement of 1773 by 1394	5
00038	Active Fires EDR Performance Tables	44
00039	Ocean Color/Chlorophyll EDR	48
00040	Confidence Level for Probabilities	27, 35, 43, 49
00033	Deletion of NASA's Explicit Earth Location Requirement	57